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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/755,696	01/05/2001	Hiroshi Sacki	NEC 2020	4001

7590 06/10/2003

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EXAMINER

DONG, DALEI

ART UNIT

PAPER NUMBER

2875

DATE MAILED: 06/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/755,696

Applicant(s)

SAEKI, HIROSHI

Examiner

Dalei Dong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/755,696.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,938,494 to Betsui in view of U.S. Patent No. 5,797,780 to Peng.

Regarding to claims 1-8, Betsui discloses in Figure 3, an apparatus for manufacturing a plasma display comprising “the front substrate 11, for which the steps up to the formation of the dielectric film 17 has been finished, is first put in a loading chamber 51 and then transferred into a protective film forming chamber 52. The pressure of oxygen inside the protective film forming chamber 52 is 1×10^{-4} Torr” (column 5, line 12-17).

Betsui also discloses in Figure 3, “continuously the front substrate 11 is transferred into a high-vacuum transfer chamber 53 and next transferred into a temporary protective film forming chamber 54. When SiN is used for the temporary protective film 19, for example, a SiN film is formed onto the surface of the protective film 18 using a SiN target 54a. The pressure of the gas inside the temporary protective film forming chamber 54 is 5×10^{-3} Torr. Then the front substrate 11 is transferred into an unloading chamber 55 and taken out. All three of the different chambers mentioned above are

connected to an appropriate vacuum source 56, that meet the functional needs of each chamber operation” (column 5, line 20-31).

Betsui further discloses in Figure 3, “the rear substrate 21 and the front substrate 11 thus formed are put together so that the address electrodes and the sustain electrodes crossingly face each other. With this state maintained, the substrates are heated so that the sealing medium 12 melts to stick the front substrate 11 to the rear substrate 21 together, thus the panel being assembled. At the same time, a exhaust tube (not shown) for discharging the inside gas is fitted. The gas inside the panel is discharged through the exhaust tube” (column 5, line 50-59).

Betsui further yet discloses in Figure 3, “the electric gas for removal is introduced into the panel. AC voltage is applied between the sustain electrodes X and Y to generate plasma (surface electric discharge) between both the sustain electrodes, so that the SiN film 19 is removed from the surface above the sustain electrodes X and Y by etching with the generated plasma. Here, the SiN film 19 is removed only from the regions above the sustain electrodes X and Y (the region for surface electric discharge for display)” (Column 5, line 63 to column 6, line 4).

Betsui further yet discloses in Figure 3, “the gas inside the panel is taken out, a discharge gas for display containing Ne and Xe is fed and the tip tube is sealed” (column 6, line 9-11).

However, Betsui does not disclose the apparatus and the method of sealing the gas introduction/exhaust port. Peng teaches in Figure 4, “A hybrid sealing process will now be described by using a glass exhaust tube, 10, that is sealed to one end of a three-port

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stainless steel tube, 20, by a vacuum O-ring seal, 11. The branch tube, 12, of this three-port stainless steel connects to the pumping system, as shown in FIG. 4. The other end of this exhaust tube having a diameter approximately 7.0 to 13.0 mm larger than the exhaust aperture in the back flat glass is sealed to the back flat panel, 1b, around the aperture with de-vitrified glass frits, 5. The aperture opening is centered in the aperture end of the exhaust tube. The other end of the straight portion of the three-port stainless steel tube is hermetically sealed with a linear motion feed-through mechanism, 13, which moves and manipulates a stainless or glass plunger, 14, as shown in FIG. 4. The plunger consists of a shaft, 15, with one end attached to the linear motion driving mechanism, 13, and the other end attached to a holder, 16. A sealing plate substrate, 17, having a diameter in the range, which overlaps the aperture opening, 9, by approximately 2.5 to 3.5 mm. The glass plate, 17, is adhered to the vitreous glass frits, 18, by dispenser. The vitreous glass frits having thickness in the range of about 0.75 to 1.25 mm, 18, has a diameter slightly smaller than the glass plate substrate. The sealing plate/vitreous glass frits assembly is then mounted onto the holder, 16, with only the glass plate, 17, held by of the plunger, i.e. the vitreous glass frits is at the front tip. It is important that the holder should only hold the sealing plate, and not in contact with the glass frits in order to minimize contamination. The sealing plate/vitreous glass frits assembly is driven toward the aperture and block the opening in the back flat panel after the pressure inside the panel box has reached a vacuum level of 5×10^{-7} torr or lower at a temperature between about 400 to 500 deg.C. in the oven, 21. The thickness of the glass frits has to be pre-determined to allow the devitrified glass frits not only completely fill the aperture

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opening, 9, in the glass panel to form a sealed plug, but also with overflow of the glass frits on both ends of the plug, thereby allowing overflowed glass frits to bond to the inside and outside surfaces of the back glass panel, 1b, surrounding the plug as shown in FIG. 5, i.e. in the shape of a spool when the temperature of the glass frits reaches the oven temperature" (column 3, line 63-67 to column 4, line 1-36).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have add the hybrid sealing process and apparatus of Peng to the manufacturing process of Betsui in order to effectively seal the introduction/exhaust port and to achieving high vacuum after sealing without the use of high cost and low throughput vacuum oven or furnace and further eliminate contaminations within the plasma display.

Response to Arguments

3. Applicant's arguments filed May 30, 2003 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Betsui reference and Peng

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reference, Examiner asserts that Betsui reference discloses the sealing of the tip tube (column 6, line 10) as part of an integral process of making the plasma display panel and Peng reference teaches a chamber to seal the tip tube, therefore it would have been obvious to one having ordinary skill in the art to add the Peng's chamber of sealing tip tube as an part of the integral process of manufacturing a plasma display of Betsui.

Also in response to Applicant's argument that the claimed invention does not have a transfer chamber as disclosed by Betsui reference. Examiner asserts that it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

Finally in response to Applicant's argument that neither Betsui reference nor Peng reference discloses or suggest a step of making the inside of the gas introduction and sealing chamber at atmospheric pressure. Examiner asserts that Betsui discloses a electric gas for removal is introduced into the panel and as shown in Figure 3, the temporary protective film forming chamber has an gas pressure of 5×10^{-3} or under atmospheric pressure.

Thus, Examiner asserts that the Betsui reference along with Peng reference discloses the present claimed invention and both references are valid and maintains the rejection.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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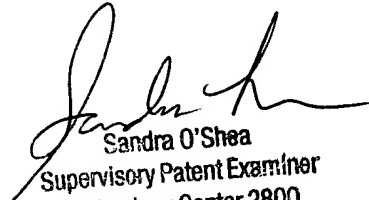
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (703)308-2870. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (703)305-4939. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9318 for regular communications and (703)872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

D.D.
June 6, 2003


Sandra O'Shea
Supervisory Patent Examiner
Technology Center 2800